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ABSTRACT

Three assessment issues have emerged from the amendments to the Carl D. Perkins Vocational Education Act and literature surrounding recent calls for reform in teacher education: teacher preparation, teacher qualifications, and teacher demand, including the extent to which demand is being met. Preparation issues include the following: What is the optimum mix of preparation studies and experiences for vocational teachers? What specific preparation must be provided to prepare vocational teachers for their new roles in education, such as integrating academic and vocational curricula? and What types of continuing education are needed by practicing teachers? In the area of qualifications, issues are as follows: To what extent do teacher qualifications differ from preparation? and To what extent is occupational experience an asset or a liability to vocational teaching? Teacher demand issues are the following: What demand for vocational teachers exists? How many teachers are available to fill the demand? and Is vocational demand switching from secondary to postsecondary teaching? Data sources available for study of these issues include materials from the American Association of Colleges of Teacher Education, "A National Database on Vocational Teacher Education," schools and staffing surveys of the National Center for Educational Statistics, yearly surveys of agricultural education, and "Industrial Education" magazine. (32 references) (KC)

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TEACHER PREPARATION, QUALIFICATIONS, AND DEMAND

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OVERVIEW

Beginning in the early 1980s, a number of studies and reports related to public education have caught the public's attention. **A Place Called School** (Goodlad, 1984), **A Nation at Risk** (National Commission on Excellence in Education, 1983), and **High School** (Boyer, 1983) are examples of reports that called for significant changes to education. Focusing more specifically on vocational education reform were documents such as **The Unfinished Agenda** (National Commission on Secondary Vocational Education, 1985), and **Investing in Our Children** (Committee on Economic Development, 1985). Recommendations from these and other reports revealed a number of areas that demanded immediate attention.

Paper prepared for the National Assessment of Vocational Education Design Conference, Washington, DC, March, 1991. Dr. Finch is Professor and Director, Virginia Polytechnic Institute and State University Office, National Center for Research in Vocational Education. The remarks presented in this paper are entirely those of the author and should not be attributed in any manner to the National Center for Research in Vocational Education, University of California, Berkeley, or the United States Department of Education.

Among the areas of concern were:

1. Vocational and academic educators must be equal partners in the education process, complement each other, and actually work together.
2. The basics **are** important. Basic education standards must be met by all students.
3. Basic skills must be made more relevant to each student. Basics should be integrated around each student's present and future life role.
4. Each student should receive academic **and** vocational education.
5. The curriculum should focus on developing the whole student, not just basic life and work skills.
6. Business, industry, and the community should have a more active role in the educational enterprise. (Finch, 1990)

In response to reform recommendations, a number of schools across the country have implemented meaningful changes. Examples of change are increasing graduation requirements, placing emphasis on integrating academic and vocational education, and improving linkages between secondary and postsecondary institutions.

Following closely in the wake of studies related to education reform were numerous examinations of teacher education. For example, **Tomorrow's Teachers** (Holmes Group, 1986) and **A Nation Prepared: Teachers for the 21st Century** (Carnegie Forum on Education and the Economy, 1986) recommended that a bachelor's degree in the arts and sciences serve as a prerequisite for the

professional study of teaching. (Additional teacher preparation recommendations are documented in Finch, 1987; Hughes, 1987; Lee, 1987; and Smith, 1987) Focusing more directly on vocational teacher education, **The Unfinished Agenda** (National Commission on Secondary Vocational Education, 1985) recommendations indicated that vocational education teachers should attain the same level of education as their academic teacher counterparts. Concern was also expressed about the need to update teachers' technical skills and to provide better means by which talented individuals could be attracted to and retained in the teaching profession.

The overall impact of teacher education reform has been great. Some universities have decided to abolish their undergraduate teacher education programs. Other universities have decided to eliminate teacher education programs from their offerings (Diegmueller, 1991). In sum, the reform movement has had significant and lasting impact on teacher preparation.

In addition to educational reform and its impact, teachers' professional roles seem to be evolving at a much more rapid rate. For example, both academic and vocational teachers are being asked to work together in the integration of subject matter content and delivery. Teachers at the secondary and postsecondary levels are expected to work together in the establishment and maintenance of tech prep programs. These changing roles, in turn, have many implications for teacher preparation and qualifications. Clearly, the teaching environment as well as teaching content and structure are changing and teachers must be responsive to these changes.

Building on the educational reform movement and teachers' evolving roles, this paper examines three important areas related to assessment: (1) teacher preparation, (2) teacher qualifications, and (3) teacher demand, including the extent to which demand is being met. Of course, these three areas are closely intertwined and thus must not be considered independent of each other. It should further be noted that emphasis has been placed on the vocational education teacher. Although relevant information has been drawn from general teacher education, focus is more specifically on vocational education teachers and teaching.

ISSUES

Assessment issues logically flow from provisions contained in the Perkins Act Amendments. Assessment of teacher preparation, qualifications, and demand must be consistent with and build upon these provisions. Issues, likewise, flow from the current status of teachers and how well these professionals are being prepared for future roles. And a final source of issues consists of documented research priorities related to vocational education personnel development (Lynch, 1987; Griggs, 1990).

Preparation Issues

What is the optimum mix of preparation studies and experiences for vocational teachers? Concern about preparation of teachers in general and vocational teachers in particular is well documented. For example, Beyer, Feinberg, Pagano, and Whitson (1989) question the divisions between educational and

liberal studies that many of the teacher education reformers seem to have taken for granted. Lynch and Griggs (1989), likewise, take issue with teacher preparation. They question the notion that a degree in arts and sciences (or in subject matter that is most appropriate for vocational education) will ensure success in teaching a particular vocational subject. Researchers would thus do well to focus on the various ways that vocational teachers are prepared and examine the links that exist between preparation and actual performance in the teacher role. Unfortunately, this may not be feasible during the current assessment cycle. A realistic assessment goal at this point in time would be to establish an information base that enables future assessments to focus on links between preparation and performance.

What specific preparation must be provided to prepare vocational teachers for their new roles in the education enterprise? Both academic and vocational teachers are or soon will be faced with the task of integrating academic and vocational education in their schools. Teachers will also participate in establishing tech prep programs that link secondary and postsecondary institutions to better meet students' needs. These changes as well as others have the potential to place new professional requirements on teachers. Examples of such requirements might include working as members of professional integration teams and coordinating educational content and delivery with counterparts in other departments and institutions. Although the exact nature of these requirements is not yet known, initiation of new curricular directions in the

schools can provide researchers with a unique opportunity to examine how and to what degree teachers assume these new roles.

To what extent are vocational teachers prepared to work with special needs students? This question is often asked and typically answered by the comment "it depends." Teacher preparation programs and certification requirements vary from state to state and, once teachers are on the job they may encounter students with a wide range of special needs. In the schools, teachers may receive support from a great number of specialists or may be on their own. As more and more special needs students are mainstreamed in vocational education classes, it is most important to know if teachers are capable of helping these youngsters and adults to achieve their maximum potential.

Are those who currently teach continuing to develop both technically and professionally? Continuing development is just as important to vocational teachers as it is to other professionals. Today's professional and technical knowledge and skills may be obsolete unless supplemented by new information and practice. This extends beyond full-time to part-time teachers who are becoming an increasing larger percentage of faculties in postsecondary institutions.

How do alternate paths into the vocational teaching profession compare in terms of teacher readiness to teach? It should come as no surprise that about 70 percent of the Trade and Industrial teachers do not have degrees. Many of these non-degreed teachers have entered the teaching field with little more than a high school diploma and a vita full of rich employment

experiences in an occupational field. Others become vocational education teachers by entering the field after receiving baccalaureate degrees in a variety of fields and working in areas such as business, marketing, and agriculture (Lynch, 1990). The flow of persons with such diverse backgrounds and preparation into vocational education teaching raises a host of questions about readiness to teach. This is particularly true at a time when teachers are being expected to integrate academic and vocational education and establish tech prep programs.

Qualifications Issues

To what extent do teacher qualifications differ from preparation? Even though persons may have completed teacher education programs, it does not mean that they will be competent teachers. Entering the profession at a stage anywhere from advanced learners to seasoned professionals, many teachers must learn on the job what they did not learn in universities or while working in technical fields (Heath-Camp & Camp, 1991). Thus, due to a variety of factors such as quality and relevance of teacher education programs and backgrounds of persons entering the teaching field, there is potential for a great deal of variability in vocational teacher qualifications. This potential variability is clearly an area that warrants examination. However, the current assessment team may only be able to document what qualifications teachers possess (e.g., participation in organized pre-service internships versus being placed in front of a class with no professional preparation).

Does teacher preparation contribute to success in new teacher roles? Although tech prep and the integration of academic and vocational education are just beginning to be implemented in the schools, the next several years will see much growth in these areas. Thousands of teachers will most likely be engaged in the implementation of new and refined programs. As these changes occur, it is an opportune time to examine how teachers accept new roles and the extent to which this acceptance is a function of preparation experiences.

To what extent is occupational experience an asset or a liability to vocational teaching? The debate over how much occupational experience vocational teachers should have has gone on for decades. However, structural changes in vocational education curricula (i.e., integration of academic and vocational education, tech prep) may contribute to making this debate obsolete. The creation of tech prep programs may demand a new breed of vocational teacher. At the secondary level, there may be a need for teachers who have competence in a broad occupational field instead of a specific job and have greater facility at teaching the basics (mathematics, science, English) as they apply to occupations. At the postsecondary level, teachers participating in tech programs may need to meet the demands of better prepared high school students who have achieved higher levels of academic studies. A similar situation may exist for teachers who serve on professional teams that integrate academic and vocational education. Evolving from this change may be a need for vocational teachers who are themselves better

prepared in terms of mathematics, science, and English. Occupational experience quality and technical level may become more and more critical. As vocational education evolves, the evolutionary nature of teacher qualifications may be a most meaningful area of study.

Demand Issues

In general, demand for teachers is a function of the number of students to be taught, class size, and teacher availability and attrition. However, with regard to vocational teachers, actual availability to teach can often be linked to the range of potential job opportunities in business and industry that are available to these teachers. Persons who can earn more money in business or industry than teaching must do a great deal of soul searching when it is time to make a job decision. Other factors certainly affect the demand for teachers. These are included in questions related to the area of teacher demand provided below.

- To what extent is there a demand for teachers at the postsecondary and secondary levels in various vocational teaching areas?.
- To what extent are persons available to teach at the secondary and postsecondary levels in various vocational teaching areas?
- Does current and future vocational teacher supply meet current and projected demand?
- Is vocational teacher demand shifting from the secondary to postsecondary level, from various teaching areas to other teaching areas, and from a demand for less non-degreed and more degreed teachers?

- To what extent do certification requirements affect vocational teacher qualifications and thus affect demand?

DATA SOURCES

A review of research and literature related to vocational teacher preparation, qualifications, and demand indicates that several potential data sources exist in this area. Presented below are highlights of some of the more recent studies related to vocational teachers and teaching.

Sources Related to Preparation

Pratzner (1987) conducted a comprehensive national survey of vocational teacher preservice and inservice preparation. The survey focused on both preservice preparation programs and beginning teachers' perceptions of these programs. Pratzner's report includes extensive information about teacher preparation and qualifications. It was, for example, found that vocational teacher preparation programs gave little attention to preparation for teaching basic skills and special student populations. An American Association of Colleges of Teacher Education (AACTE) teacher education survey (AACTE, 1990a) includes enrollment in schools of teacher education by academic field and race/ethnicity. It was reported that, as of Fall, 1990, 4128 students were enrolled in vocational teacher preparation. Enrollment distribution included: White - 75%, Black - 15%, Hispanic - 2%, and other - 4%. It should be noted that AACTE has conducted a number of teacher education-related surveys over the

years that may have implications for vocational teacher preparation (e.g., AACTE, 1990b).

Titled **A National Database on Vocational Teacher Education**, a study conducted by the National Center for Research in Vocational Education (NCRVE), University of California-Berkeley (Lynch, 1990) provides comprehensive information about the vocational teacher education environment, the vocational teacher education professorate, and vocational teacher education curriculum within a context of reform. Another NCRVE study (Finch, Schmidt, Oliver, & Yu, 1991) focused on a analysis of vocational teacher education graduates' university transcripts. This study provides a detailed view of the academic, technical, and professional studies completed by students in six vocational teaching areas.

Sources Related to Qualifications

Although most studies give only passing concern to vocational teacher qualifications, there are several investigations that may serve as meaningful source documents for this area. Referring again the Pratzner (1987) study, included in the results is a great deal of information related to vocational teacher qualifications. In their recent report related to a comprehensive study of vocational teaching, Heath-Camp and Camp (1991) provide the results of a national survey of new or beginning vocational teachers. Included in the report are data related to areas such as gender, race, marital status, subjects taught, grade levels taught, job satisfaction, and income. This information is particularly useful with regard to

persons from non-traditional backgrounds (e.g., not having degrees in vocational teaching) that are entering the vocational teaching field.

The National Center for Educational Statistics (NCES) has, for some time, conducted a Schools and Staffing Survey that may provide useful information about vocational teachers and teaching. Included in the survey results are data related to vocational teacher demographic characteristics, educational backgrounds, and information by teaching area. NCES is continually improving this comprehensive data base and sharpening its focus on vocational education teachers.

Several studies focusing on vocational teacher certification can be logically linked to the qualifications area. Duenk's (1989) study of certification requirements for trade and industrial teachers provides a meaningful view of a teacher group that has traditionally taught without the bachelor's degree. Data gathered from 53 states and territories revealed that only two states require the bachelor's degree for initial certification. Ten states require the bachelor's degree for full certification. A parallel study in the Health Occupations teaching area (Chappelka, 1989) revealed similar certification information. Unfortunately, there appears to be no document available that provides comprehensive details about certification requirements for all vocational teaching areas on a state by state basis.

Sources Related to Demand

Information related to vocational teacher supply and demand appears to be at least partially available. Such information is gathered via separate surveys conducted by persons representing different vocational teaching areas. Thus, comparability of information across teaching areas does not appear to be possible. A national study of the supply and demand for teachers of Agricultural Education has been conducted annually for the past 25 years. The most recent survey (Camp & Oliver, 1990) provides, on a state by state basis, information about agriculture teacher positions available and teachers prepared by teacher education institutions. Trend data from 1965 to the present is also provided. **Industrial Education Magazine** has, for a number of years, conducted surveys of Trade and Industrial and Technology Education (formerly Industrial Arts) teacher supply and demand. Reported on a state by state basis are both the need for and shortage of teachers. A recent Technology Education teacher survey (Miller, 1990) includes information about the number of teachers current employed in each state as well as the number of teachers produced by colleges and universities. With regard to the Trade and Industrial teacher survey (Greenan, 1990), demand information is presented by specific teaching area (e.g., auto mechanics, electronics, carpentry, drafting).

In the Business Education area (Stocker, 1989) conducted the sixth in a series of studies focusing on business education in the United States. Included in the study was information about business teacher supply and demand as perceived by business

education departments in universities. This report contains useful trend information for business education since data from all surveys are included.

RESEARCH CONCERNS AND HOW THEY MAY BE ADDRESSED

Several research concerns exist with regard to vocational teacher preparation, qualifications, and demand. First, it is clear that no comprehensive data base exists which encompasses the area in a logical and functional manner. As Lynch (1988, 37) indicated, "Data is needed about vocational teacher education: Its scope, administrative structure, design, curriculum, standards, faculty, students, and--perhaps, most importantly--its actual and perceived (in) effectiveness." Clearly, some time will pass before such a comprehensive data base is developed. However, it is recognized that such information is needed for national policy and accountability purposes (Hoachlander, 1989).

Several additional concerns and potential constraints emerged during the preparation of this paper. These concerns are listed below since they have, at least in part, been discussed earlier.

- Teacher mobility which is to some degree a reflection of the range of job opportunities available to vocational teachers (e.g., secondary, post-secondary, adult, business, industry, government).
- Variation in state teacher certification requirements.

- Range in teacher qualifications (e.g., degreed versus non-degreed teachers, different technical content associated with various vocational teaching areas).
- Range of teaching settings (e.g., comprehensive high school versus separate vocational school or center versus community or technical college).
- Heterogeneous nature of vocational teachers (e.g., beginning teachers may be younger or older and may be in their first, second, or third careers).
- Limited knowledge about part-time vocational teachers and how this group may be best served.

In terms of dealing with concerns in the research process, several suggestions come to mind. First, a close look must be taken at teachers in both secondary and post-secondary institutions. It is of particular importance to assess the way teachers in these settings interact with each other. This will assist in capturing information about teacher linkages across institutions as related to activities such as tech prep programs. A second suggestion is to examine relationships that exist among academic and vocational teachers. For example, do academic and vocational teachers work together in the education of all students? Do they share a common vision? Do they work as members of teaching teams? Do they collaborate on student assignments? This should be accomplished both within and across institutions (e.g., secondary vocational centers and feeder schools). Such an approach will, hopefully, capture the dynamics of teachers working together to integrate academic and vocational

education. Third, consideration should be given to the concurrent gathering of teacher, student, school, and community information. This could be accomplished by employing a case study methodology and using communities and/or attendance areas as analysis units. And finally, even though data bases in the area of vocational teachers and teaching are lacking, the sources provided in this paper, together with access to currently unpublished data sources (e.g., NCES, AACTE) may provide answers to at least some of the assessment questions raised.

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